**Variation in mechanical properties of two rubberwood clones in relation to planting density**


ABSTRACT

Variation in mechanical properties of two rubberwood clones in relation to planting density. Hevea brasiliensis as a fast-growing species with rotation age of about 25 years is usually managed under intensive silviculture techniques. Normally, it has a high amount of lower quality juvenile wood that needs to be characterised for proper usage. Samples from four planting densities (500, 1000, 1500 and 2000 trees ha-1) of two new rubberwood clones [RRIM 2020 (A) and RRIM 2025 (B)] were subjected to selected mechanical tests. Significant differences in modulus of rupture (MOR) and modulus of elasticity (MOE) between planting densities were found except for MOE from clone B. The significant difference in clone B for compression parallel to grain was between the lowest planting density and the rest. In clone A, the significant difference for hardness was between densities of 1000 and 2000 trees ha-1 and in clone B between 500 and 1000 trees ha-1. Planting density was responsible for significant differences in shear parallel to grain between the lowest and highest planting densities in clone A and between 500 and 1500 trees ha-1 in clone B. Wood density moderately correlated with mechanical properties, so the regression equations were established directly with the planting densities. Properties including compression and hardness from clone A and MOE and compression from clone B were not successfully quantified in relation to planting density using a regression approach. Consequently, the mechanical properties in young trees were not highly affected by planting density. There were more visible differences between low and extreme planting densities than with moderate densities. Low planting density emerged as the optimum density.



**Keyword:** Wood strength properties; Plantation density; Rubberwood; Clonal effects